DOGGR Aquifer Exemption Checklist

No two aquifer exemptions are alike as each one presents a unique set of issues. The following checklists should provide clarity to the exemption application review process. Each of the EPA's and State Water Board's written requirements have been listed below exactly as they are published as well as adapted completeness checks provided by each agency. The DOGGR makes every attempt to verify that both the EPA and State Water Board Requirements are met, while encouraging the wise development of oil and gas resources.

EPA Requirements- Code of Federal Regulations 146.4

a) It does not currently serve as a source of drinking water; **and**

b) It cannot now and will not serve as a source of drinking water because**:**

1. It is mineral, hydrocarbon or geothermal energy producing, or can be demonstrated by a permit applicant as part of a permit application for a Class II or III operation to contain minerals or hydrocarbons that considering their quantity and location are expected to be commercially producible**. or**

2. It is situated at a depth or location which makes recovery of water for drinking water purposes economically or technologically impractical**; or**

3. It is so contaminated that it would be economically or technologically impractical to render that water fir for human consumption**; or**

4. It is located over a Class III well mining area subject to subsidence or catastrophic collapse**; or**

c) The total dissolved solids content of the ground water is more than 3,000 mg/l and less than 10,000 TDS mg/l and it is not reasonably expected to supply a public water system**.**

d) **Water Board Requirements- Public Resources Code 3131(a)**

1. Criteria set forth in Section 146.4 of Title 40 of the Code of Federal Regulations.
2. The injection of fluids will not affect the quality of water that is, or may reasonably be, used for any beneficial use.
2. The injected fluid will remain in the aquifer or portion of the aquifer that would be exempted.

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EPA Aquifer Exemption Request

Completeness Check

Project:

Key to tables: Each row in the tables below describes a piece of information that EPA will evaluate to determine whether the aquifer exemption request meets the criteria at 40 CFR 146.4. EPA evaluated the completeness of the information submitted and recorded its findings as follows:

- "*Submitted and complete*" means that the aquifer exemption request included information on which to evaluate the specific aspect of the criteria (and the relevant information in the request is summarized in the table).
- "*Incomplete*" means that the applicant submitted some information, but it is incomplete or of insufficient detail to support a determination. EPA requests specific clarification or additional information in these rows of the table.
- "*Not provided*" means that EPA found nothing in the request that addressed the element.

Tables are provided for each of the potential criteria applicable to Class I aquifer exemptions. However, only **one** of the 40 CFR 146.4(b)(2), 40 CFR 146.4(b)(3), or 40 CFR 146.4(c) criteria must be addressed for a Class I well aquifer exemption, in addition to 40 CFR 146.4(a) for the request to be complete.

General Project and Aquifer Information

General Information	Complete	Incomplete	N/A	Description
Owner/operator name	X			Title Page
Well/project name	X			Title Page
API number(s)			X	
Well Class (and subtype)	X			Page 1-1
Purpose of Injection	X			Page 1-1
Where is the proposed aquifer exemption located?	X			Page 1-1

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Township, Section, Range, Quarter.	X			Page 1-1
Latitude and longitude Information.				
County and City	X			Executive Summary
Information about distance to nearest Town and/or County.	X			Executive Summary
Name of the aquifer or portion of the aquifer to be exempted.	X			Title Page, Executive Summary
Areal extent of the area proposed for exemption.	X			Page 1-1
Depth and thickness of the aquifer.	X			Page 2-1
Information on the TDS content of the aquifer, including the TDS at the top and bottom of the exempted zone, and the locations and depths of all fluid samples taken.	X			Wells are completed across the thickness of the Transition Zone – Water Quality reports span its thickness as well.
Water disposal wells into sub-3,000 TDS?	**Yes/No**	**Yes/No**		
Water disposal wells into 3,000-10,000 TDS aquifers?	**Yes/No**	**Yes/No**		
40 CFR 146.4(a) criteria				
How the proposed exempted area was determined (i.e., does it account for all past and future injection?).	X			Page 2-2
Lithology	X			Page 4-1
Permeability and porosity.	X			Page 4-1 and 4-2
Direction of groundwater flow.	X			Page 4-4 and 4-5
Upper and lower confining zone(s) and description of vertical confinement from USDWs.	X			Page 4-7

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Information on drinking water wells that draw from the aquifer proposed for exemption, for which the aquifer might be a current source of drinking water.	X			Page 4-7.
Maps of the area, geology, and hydrogeology.	X			Geology: Figures 4-6, 8-13 Hydrogeology: Figures 17,18
Table of inventoried water wells with owner information, purpose, depth, name of aquifer, well completion, age, and data source (including all wells tapping any aquifer in the area).	X		X	Table 4
Map showing down-gradient and hydraulically connected water wells (including all wells that draw from the aquifer proposed for exemption or any hydraulically connected aquifers).	X		X	
How ground water direction and speed were determined	X			Page 4-4, 4-5
SWPA5 and designated sole source aquifers.			X	
Size of the area evaluated and rationale for determining the size area	X			Page 2-2 (2.1.2)
How the lifetime of the well was determined.			X	
Checklist item -40 CFR 146.4(b)(1)				
Description about how the current/future productive area was determined. Was the method of determination scientifically	X			Section 4.1.5

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valid?				
Description and mapped extent of the current/future productive area.	X			Page 2-2
Table of inventoried oil wells outside the current exempt boundary or those that justify modification of the current productive area. Details include the well names, API numbers, producing formation(s), completion depths, and completion dates.	X			Figure 14 Appendix E
Checklist item -40 CFR 146.4(b)(2)			X	
Availability of less costly and more readily available alternative supplies.				Shallow ground water is of better quality
Adequacy of alternatives to meet present and future needs.				
Costs for treatment and/or development associated with use of the aquifer.				
An economic evaluation that considers: distance to PWS; water sources; availability, quantity and quality of alternative water supply sources; future water supply needs in the area; depth of the aquifer; and water quality.				
Checklist item -40 CFR 146.4(b)(3)			X	
Concentration, type, and source of contaminants.				

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If contamination is a result of a release, whether contamination source has been abated.				
Extent of the contaminated area				
Probability that the contaminant plume will pass through the proposed exempted area.				
Ability of treatment to remove contaminants from ground water.				
Current and alternative water supplies in the area.				
Costs to develop current and future water supplies (e.g., construction, transportation, treatment costs).				
Projections of future use of the aquifer.				Page 4-9
Checklist item -40 CFR 146.4(c)			X	
Basis for determination that the TDS is between 3,000 and 10,000 mg/l (for example, are current, detailed analysis reports provided, from a lab that is certified in California?).				
Basis for determination that the aquifer is not reasonably expected to supply a PWS.				
Information about water quality and availability.				

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Potential PWS use of the aquifer, including description of current sources in the area, the adequacy of current sources to supply future needs, population projections, economy, future technology, and other available water supply sources in the area.	X			Mentioned Throughout.

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Aquifer Exemption Proposal Completeness Checklist
State Water Resources Control Board

Note: This checklist from the Water Board must be recompleted for each zone

No.	Parameters	Citation	Yes	Page or Attachment	No	Notes	N/A
1	List of operators affected by aquifer exemption.		X	Title Page			
2	List of aquifer(s), or portions of aquifer(s), proposed for exemption.		X	Title Page			
3	Estimated timeline of future injection project(s).						
4	Detailed map(s) and geologic cross-sections that delineate (laterally/vertically) the boundaries of the aquifer(s) exemption. These maps and cross-sections must extend at least ¼-mile beyond the boundaries (i.e. buffer zone).	PRC 3131(a) criteria	X	Page 2-1, 2-2 Figures 2-8, 12, 13			
5a	A table that lists of all water supply wells identified within the Study Area (the proposed exempted area, plus the buffer zone).	PRC 3131(b) and 40 CFR 146.4(a) criteria	X	Table 4			
5b	This table must include, at a minimum: type of well, status (i.e. active, idle, etc.), total depth, and if known, the screen interval, analytical data and aquifer.		X	Table 4			
6	A map showing the locations of water supply wells within the Study Area.		X	Figure 16			
7	An assessment on whether any water supply wells have a hydrologic connection with the proposed exemption area.		X	Page 4-8			
8	Detailed, technical explanation of the lateral and vertical extent of the aquifer(s) proposed for exemption.	Remaining 40 CFR 146.4 criteria (b1-c)	X	Page 2-2 Figure 2, Cross-sections 4-6			
9	An assessment of the potential future beneficial use of the groundwater of the proposed exempted aquifer(s).	PRC 3131(b) criteria	X	Executive Summary-II Page 4-6 Page 4-7			

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10	Discussion on Basin Plan designations (all municipal, except in rare cases)	- current designations	X	Page 4-7			
11	Water quality data of the aquifer(s)	- potential future source - changes in quality	X	Fig. 19, Table 3			
12	Water quality data of injectate	- potential future source - changes in quality	X	Figure C-3			
13	Detailed, technical explanation of how the injected fluid will be contained in the proposed exemption area (geologic, hydrologic, hydraulic). *One or more of the following is required:*	PRC 3131(c)	X	Page 2-2			
13a	Detailed map(s) and geologic cross-sections showing geologic containment features (i.e. sealing faults, pinch-outs, low permeability rock, etc.)		X	Figures 2-6, 8-10, 12, 13			
13b	Map(s) showing hydraulic gradient		X	Figure 17			
13c	Groundwater (injected fluid) flow modeling over the life of injection project(s)						
13d	Physical properties of containment features in the aquifer(s) (sealing faults, pinch-outs, confining layers, etc.)		X	Page 2-2 Page 4-1			
13e	Other empirical evidence of containment		X	Page 2-2 Figure 6			

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